

REMARKS

Entry of Amendment

Applicants are merely correcting a minor informality in Claim 26. No new matter is being added nor is the scope of the claim being changed. Therefore, the amendment does not require any further consideration and/or search. Accordingly, it is respectfully requested that this amendment be entered and considered at this time.

Applicants will now address each of the rejections in the order in which they appear in the Final Rejection.

Claim Rejections – 35 USC §103

In the Final Rejection, the Examiner has the following rejections under 35 USC §103(a):

- A. Claims 1-6, 16-17, and 29-30 are rejected as being unpatentable over Kiguchi et al. (U.S. 6,599,582) in view of Di Dio (U.S. 2004/0152329) and Speakman et al. (US 6,849,308), optionally further considering Lewis et al. (U.S. 5,272,979).
- B. Claims 1, 3-4, 6 and 29 are rejected as being unpatentable over Kiguchi and Speakman, optionally further considering Lewis.
- C. Claims 23-28 and 31-32 are rejected as being unpatentable over Kiguchi in view of Di Dio and Speakman), optionally considering Lewis, and further in view of Yamazaki et al. (U.S. 7,189,654).

These rejections are respectfully traversed.

Independent Claims 1 and 23

Independent Claim 1 (and similarly for independent Claim 23) recites the features of:

- a) forming a liquid-repellant film
- b) irradiating a selected portion of the liquid-repellant film to selectively provide affinity for a liquid composition to the liquid-repellant film

c) applying the liquid composition to the selected portion.

These features are not disclosed or suggested by the cited references, as none of the references, either alone or in combination, for example, teaches to selectively provide affinity for a liquid composition to a liquid-repellant film, which is formed before selectively providing affinity for a liquid composition. These features are illustrated in, for example, Figs. 1A to 1D of the present application.

In the rejection, the Examiner relies primarily on Kiguchi. However, Kiguchi, in Embodiment 4 (Cols. 11-12) and Fig.8, teaches using a film with no affinity for fluid on both sides of a pattern region, i.e. two liquid-repellant films are formed to confine a fluid to a pattern-forming region. This is very different than the method of independent Claims 1 and 23.

In particular, Kiguchi teaches to selectively form two films having no affinity for liquids in two parallel lines to define the contour of the pattern forming region that will receive the fluid to be staunches by the lines.

In contrast, Claim 1 (and similarly in Claim 23) recites forming a liquid-repellant film on the electrically insulating surface (i.e. on the pattern forming region). Hence, differently than Kiguchi, in the claimed method, a liquid-repellant film is formed which does not have to be particularly shaped at that time. Such a film is easy to fabricate, as opposed to Kiguchi which requires forming two parallel lines. Next, instead of forming two parallel lines of liquid repellant film as in Kiguchi, in the claimed method, the single liquid-repellant film is irradiated to selectively provide affinity for a liquid composition at a selected portion. Hence, only one pattern has to be formed to carry out the method of the present invention, which is incompatible and contrary to the method proposed in Kiguchi that requires forming two lines. This is a fundamental difference in approach: i.e., preparing

the pattern forming region after having provided a film on the substrate as in Claim 1 and 23 versus preparing contour lines of the pattern forming region in Kiguchi.

Further, none of the cited references appear to disclose or suggest a method involving inverting the behavior of the surface regarding the liquid, from liquid-repellant to “liquid-attractive,” as in the present invention.

Applicants further note that while Kiguchi appears to teach in Embodiment 3 (illustrated in Fig. 7) improving the affinity of a surface for a fluid, there is no disclosure or suggestion in Kiguchi regarding forming a liquid-repellant film on the surface and modifying the liquid-repellant film to provide it with affinity for a liquid composition at a selected portion, as in Claims 1 and 23 of the present application. As a result, Kiguchi is silent regarding the liquid-affinity characteristics of the surface of the substrate except for the forming-pattern region. The other cited references do not cure this deficiency in Kiguchi.

In addition, there is no reason, motivation or incentive to modify or combine the teachings of Kiguchi in a way that would have rendered the method recited in Claims 1 and 23 obvious.

Therefore, independent Claims 1 and 23 are not disclosed or suggested by the cited references, and Claims 1, 23 and those claims dependent thereon are patentable over the cited references. Accordingly, it is respectfully requested that the rejection of these claims be withdrawn.

Independent Claims 2 and 26

Independent Claim 2 (and similarly for independent Claim 26) recites the features of:

- a) forming a thin film having affinity for a liquid composition
- b) selectively irradiating the selected portion of the thin film with a plasma of a gas originating from the first nozzle to form a groove or a hole in the selected portion
- c) discharging a drop from the second nozzle after having irradiated the selected

portion with the plasma

These features are not disclosed or suggested by the cited references, as none of the references, either alone or in combination, for example, teaches forming a groove or a hole in which a drop will be discharged. These features are illustrated in, for example, Figs. 2A to 2D of the present application.

In contrast, Kiguchi teaches in Embodiment 6 forming banks that inhibit the outflow of fluid near the border of the pattern-forming region. This is not forming a groove or a hole as in the claimed invention.

More specifically, the method of independent Claims 2 and 26 forms a structure to prevent outflow of a liquid by removing material in the pattern-forming region. In contrast, Kiguchi teaches adding material to a certain height to form banks on areas surrounding the pattern-forming region. In addition, Kiguchi teaches in col 13, lines 12-16, that it is preferable to provide a step for removing the banks. This teaching is clearly incompatible with the groove or hole of Claims 2 and 26 of the present application.

Therefore, independent Claims 2 and 26 are not disclosed or suggested by the cited references, and Claims 2, 26 and those claims dependent thereon are patentable over the cited references. Accordingly, it is respectfully requested that the rejection of these claims be withdrawn.

Accordingly, it is respectfully requested that the 35 USC §103(a) rejections be withdrawn.

Double Patenting

Claims 23-28 and 31-32

The Examiner further rejects Claims 23-28 on the grounds of non statutory obviousness-type

double patenting as being unpatentable over Claims 1-24 or Claims 1-16 of Yamazaki (U.S. 7,189,654) or Yamazaki (US 7,625,493) in view of Kiguchi further in view of Di Dio and Speakman, optionally considering Lewis et al. This rejection is also respectfully traversed.

As explained above, Kiguchi and the other cited references do not cure the deficiencies in Yamazaki '654 or Yamazaki '493.

Therefore, it is respectfully submitted that there is no double patenting.

Claims 1-6, 16-17 and 23-30

Claims 1-6, 16-17 and 23-30 are rejected on the ground of non statutory obviousness-type double patenting as being unpatentable over Claims 1-16 of U.S. 7,625,493 in view of Kiguchi further in view of Di Dio, optionally considering Lewis et al.

As explained above, Kiguchi and the other cited references do not cure the deficiencies in Yamazaki '493.

Therefore, it is respectfully submitted that there is no double patenting.

Accordingly, it is respectfully requested that the double patenting rejections be withdrawn.

Conclusion

It is respectfully submitted that the present application is in a condition for allowance and should be allowed.

If any fee should be due for this amendment, please charge our deposit account 23-0920.

Favorable reconsideration is earnestly solicited.

Date: August 23, 2010

Respectfully submitted,

/Mark J. Murphy/

Mark J. Murphy

Registration No. 34,225

Husch Blackwell Sanders LLP
120 South Riverside Plaza
Chicago, Illinois 60606
(312) 526-1533

Customer No. 24628